IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

PILOT ENERGY SOLUTIONS, L.L.C., Plaintiff, v. OXY USA INC., Defendant.	Civil Action No. 1:16-cv-00687-SS JURY TRIAL DEMANDED

PLAINTIFF'S MOTION FOR PARTIAL SUMMARY JUDGMENT

U.S. DISTRICT JUDGE SAM SPARKS

DATED NOVEMBER 16, 2016

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Pilot brings this motion for partial summary judgment seeking a ruling that Oxy's use of the Century Plant literally infringes claims 1, 3, 5, 6, 7, 8, 10, and 33 of United States Patent No. 8,816,148 ("the '148 Patent").

Because both parties already know how the Century Plant functions, a ruling on the factual issue of literal infringement is possible at an early stage of this lawsuit. While such a ruling may require the Court to construe one or more terms in the patent claims, such construction can be done in the course of ruling on the motion. See *e.g., Schoenhaus v. Genesco, Inc.*, 440 F.3d 1354, 1355-1356, 1360 (Fed. Cir. 2006) (upholding claim construction made in summary judgment ruling; no separate *Markman* hearing held).

If granted, a partial summary judgment ruling will streamline the case by narrowing the trial issues to damages and Oxy's defenses. Even if denied, the partial summary judgment proceedings will identify claim terms genuinely in dispute, and provide the factual context needed for the Court to construe those terms early in the case. The Federal Circuit has repeatedly stressed the importance of knowledge of the accused system or product in construing patent claims. *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326-27 (Fed. Cir. 2006) ("knowledge of [accused] product or process provides meaningful context for the first step of the infringement analysis, claim construction"). Here, the sole accused installation is the Century Plant, and our motion provides the needed factual context for claim construction.

The alternative to what we propose is business as usual: the always-costly and often wasteful pattern of litigation so common in patent cases. In effect, there are two trials, the *Markman* hearing and the trial on the merits, with successive rounds of discovery for each. As visualized in Oxy's proposed Scheduling Order, that process will keep this case pending until 2019, at the earliest. While there may be cases where such a procedure is appropriate, this is not one of them. The parties' ability to address infringement at an early juncture recommends the summary judgment procedure sought here.

I. BACKGROUND

Natural gas produced from wells in West Texas may contain as much as 65% carbon dioxide. See Prim Declaration at ¶ 6. If the carbon dioxide can be separated from the natural gas, that carbon dioxide can be recycled underground, and used to increase the oil production of existing wells. See Prim Declaration at ¶ 7. However, in the past, that separation step has often proven too costly to undertake. See Prim Declaration at ¶ 9. As a result, natural gas with high carbon dioxide content was often simply left in the ground.

Eric Prim invented the process covered by the '148 Patent to provide a more economical way to separate large volumes of carbon dioxide from natural gas. See Prim Declaration at ¶ 10.

A. Infringement of the '148 Patent by Oxy.

Oxy has admitted it owns and operates the Century Plant for the purpose of producing carbon dioxide for enhanced oil recovery. Answer at ¶¶ 7, 18, 19 and 41. Ortloff Engineers, Ltd., an engineering firm in Midland, Texas, designed the Century Plant. Answer at ¶ 13. Ortloff prepared drawings that show the design of the Century Plant. See Prim Declaration at ¶¶ 11-14. Each of these drawings bears Ortloff's name.

The drawing labeled PFD-002 is the "CO2 Fractionation Process Flow Diagram" of the Century Gas Plant. See Prim Declaration at ¶¶ 11 and 13. PFD-002 illustrates the overall operation of the fractionation portion of the Century Plant. See *id* at ¶ 13. The drawings labeled PID-005, PID-006, PID-007, PID-008, PID-009, PID-010, PID-011, PID-012, PID-013, PID-015, and PID-016 show the piping and instruments of the Century Plant that carry out the process shown in PFD-002. See Prim Declaration at ¶ 14.

Collectively, all of the drawings created by Ortloff show the structure and function of the fractionation process portion of the Century Plant. As discussed in detail below, the Ortloff drawings with Oxy's admissions provide undisputed evidence that Oxy's use of the Century Plant and its use of the carbon dioxide the plant produces literally infringes claims 1, 3, 5, 6, 7, 8, 10, and 33 of the '148 Patent.

II. ARGUMENT

A. Literal Patent Infringement Law.

Patent infringement is the unauthorized making, using, selling, or offering to sell a patented invention within the United States during the term of the patent. 35 U.S.C. § 271(a). Determining patent infringement is a two-step process. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (*en banc*). In the first step the Court interprets the claims. See *id.*; See also *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1129 (Fed. Cir. 2011). In the second step, the properly construed claims are compared to the accused product or process. See *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d at 1454. If the accused product or process falls clearly within at least one of the claims, "infringement is made out, and that is the end of it." *Graver Tank and Mfg. Co. v. Lind Air Products Co.*, 339 U.S. 605, 607 (1950).

Claim interpretation begins with an examination of the intrinsic evidence, including the claims, the rest of the specification and, if in evidence, the prosecution history. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). The Federal Circuit applies a "heavy presumption" that a claim term carries its ordinary and customary meaning. *Id*. There are no **genuine** reasons for departing from the presumptive ordinary-meaning construction here.

B. **Oxy's use of the Century Plant literally infringes claim 1.**

As illustrated by the claim chart attached to Mr. Prim's Declaration and the discussion that follows, there is a clear one-to-one correspondence between the elements of claim 1 and Oxy's use of the Century Plant. Claim 1 provides:

> [1] A method of treating a hydrocarbon feed stream comprising carbon dioxide, the method comprising:
>
> [2] separating a carbon dioxide-lean stream and a carbon dioxide-rich stream from a light hydrocarbon stream;
>
> [3] separating a reflux stream from the carbon dioxide-lean stream in a reflux condenser;
>
> [4] recycling the reflux stream to a separator;
>
> [5] cooling the light hydrocarbon stream using at least a portion of the carbon dioxide-lean stream; and
>
> [6] feeding at least a portion of the carbon dioxide-lean stream into a hydrocarbon sweetening process.

'148 Patent, Column 17, Lines 57-67 (paragraph numbers added).

1. **The Century Plant treats a hydrocarbon feed stream that includes carbon dioxide.**

Paragraph one of claim 1, sometimes call a preamble, provides "a method of treating a hydrocarbon feed stream comprising carbon dioxide." '148 Patent, Column 17, lines 57-58. This requirement of claim 1 is met by Oxy's admission that it owns the

Century Plant and that the plant's purpose is to process a hydrocarbon feed stream that contains carbon dioxide. Answer at ¶¶ 7, 18-19 and 41.

2. The Century Plant separates a light hydrocarbon stream into a carbon dioxide-lean stream and a carbon dioxide-rich stream.

The second paragraph of claim 1 requires treatment of a light hydrocarbon stream, which is a stream of hydrocarbons where light hydrocarbons predominate over heavy hydrocarbons. Such a light hydrocarbon feed stream exists in the Century Plant. See Prim Declaration at ¶¶ 15 and 16.

The second paragraph of claim 1 further requires that two streams be separated from the light hydrocarbon stream: a carbon dioxide-lean stream and a carbon dioxide-rich stream. A carbon dioxide-lean stream is one having a carbon dioxide concentration that is less than, and thus leaner than, the carbon dioxide concentration of the light hydrocarbon feed stream. A carbon dioxide-rich stream is one having a carbon dioxide concentration that is greater than, and thus richer than, the carbon dioxide concentration of the light hydrocarbon feed stream. See Prim Declaration at ¶¶ 18-20.

The required separation of a carbon dioxide-lean stream and a carbon dioxide-rich stream occurs in separator T-1201 at the Century Plant. See Prim Declaration at ¶¶ 18-20. This step is shown below in Figure 1, where the light hydrocarbon feed stream (shown in yellow) is piped into the separator T-1201. The top output stream of the separator is a carbon dioxide-lean stream (shown in purple) and the bottom output stream is a carbon dioxide-rich stream (shown in green). See Prim Declaration at ¶¶ 19 and 20. Thus, the Century Plant separates a light hydrocarbon stream into a carbon dioxide-lean stream and a carbon dioxide-rich stream as required in the second paragraph of claim 1.

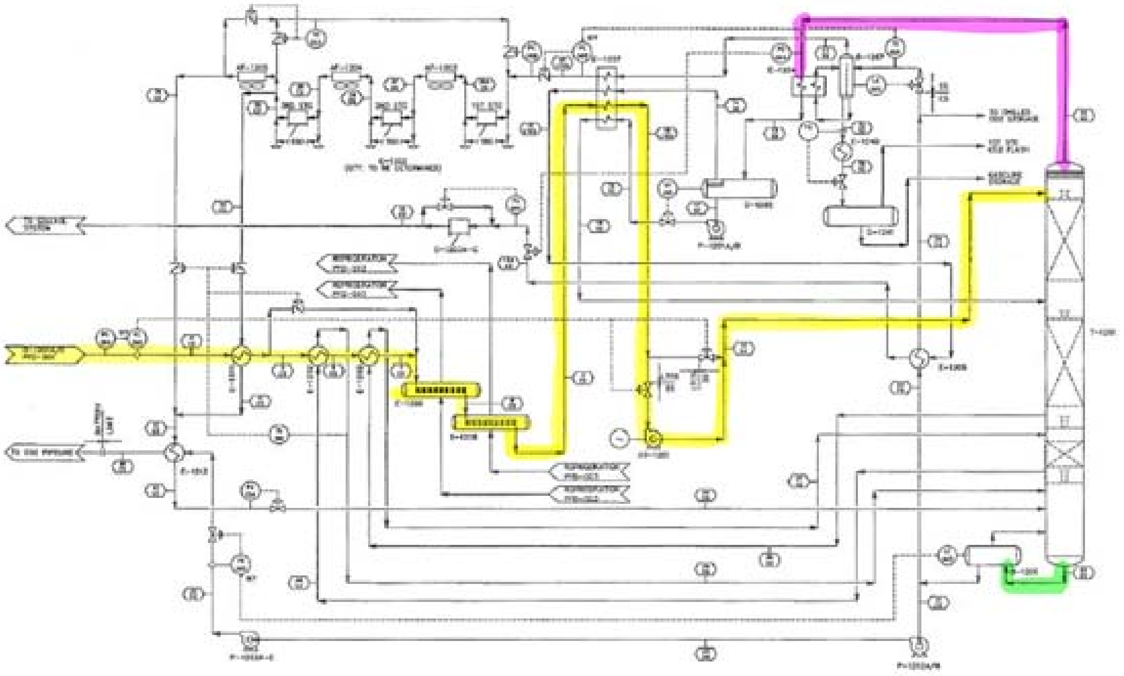

Figure 1

3. **The Century Plant separates a reflux stream from the carbon dioxide-lean stream in a reflux condenser.**

The third paragraph of claim 1 requires separating a reflux stream from the carbon dioxide-lean stream in a reflux condenser. Component E-1204 in the Century Plant is a reflux condenser. Figure 2, below, shows the carbon dioxide-lean stream is piped into the reflux condenser E-1204, where a liquid reflux stream is separated from the vapor carbon dioxide-lean stream. See Prim Declaration at ¶ 21. The Century Plant thus performs as required by the third paragraph of claim 1.

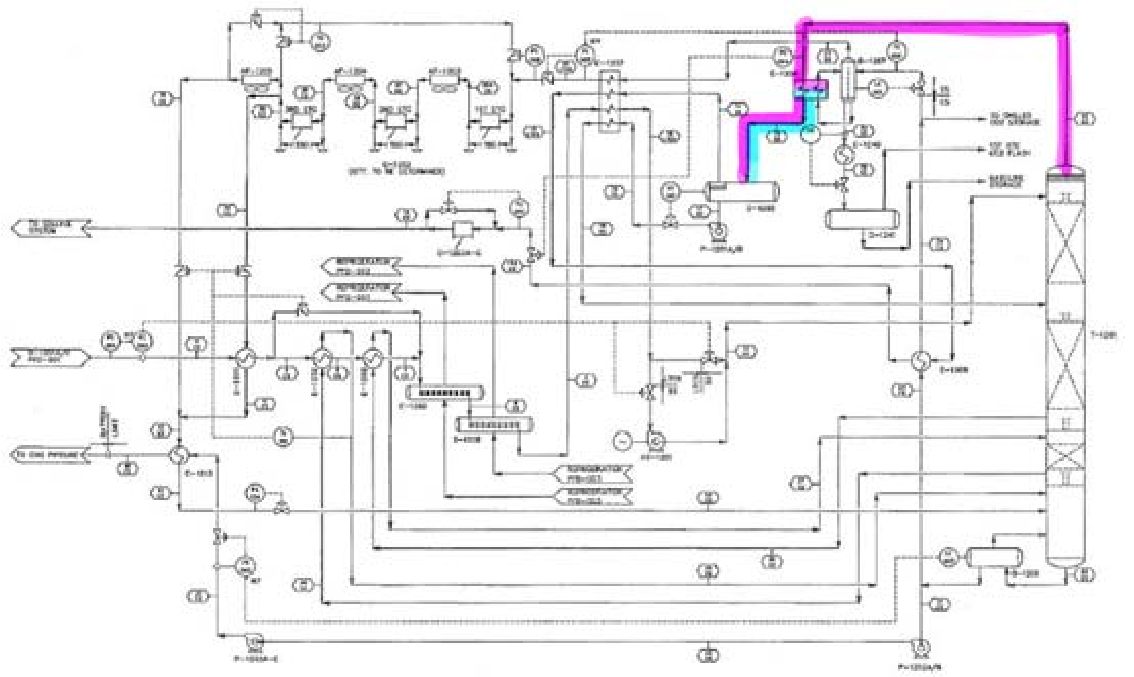

Figure 2

4. **The Century Plant recycles the liquid reflux stream from the reflux condenser to a separator.**

Paragraph four of claim 1 requires "recycling the reflux stream to a separator." '148 Patent, Column 17, Lines 61-63. Figure 3 shows that in the Century Plant, the reflux stream, which is condensed from the top output product of component T-1201, is pumped back into component T-1201, and thus recycled. See Prim Declaration at ¶¶ 21 and 23. The reflux stream flows from component E-1204 to component D-1202 and then back to component T-1201, which is a separator. See Prim Declaration at ¶¶ 18 and 23. The Century Plant thus performs as required by the fourth paragraph of claim 1.

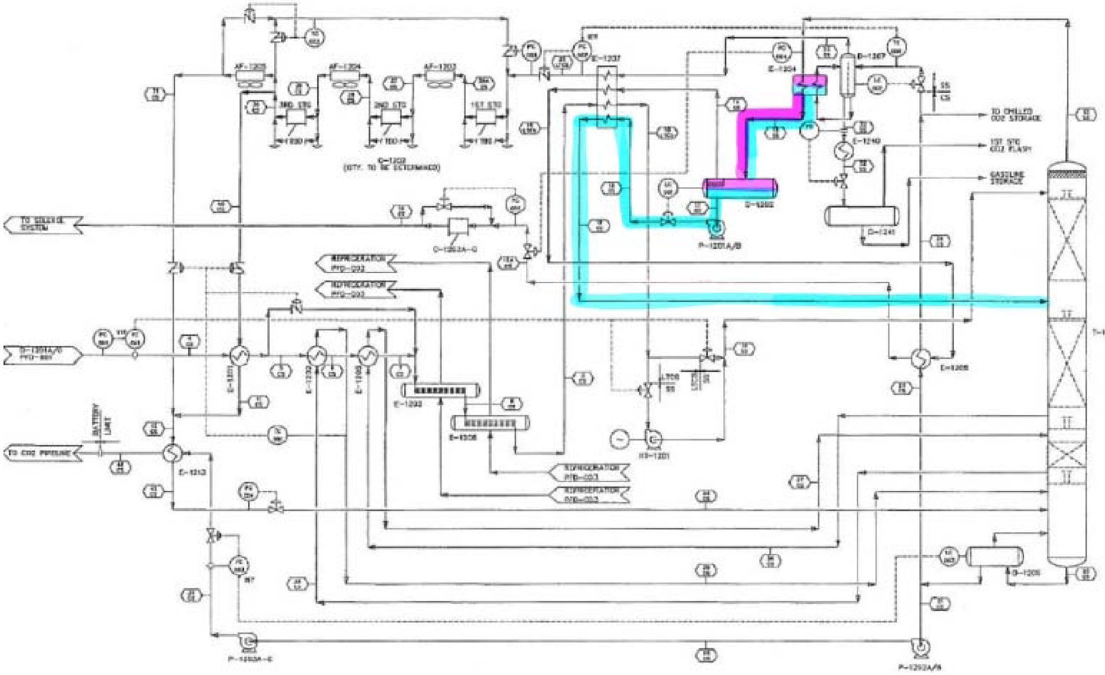

Figure 3

5. The Century Plant cools the light hydrocarbon stream using at least a portion of the carbon dioxide-lean stream.

Paragraph five of claim 1 requires "cooling the light hydrocarbon stream using at least a portion of the carbon dioxide-lean stream." '148 Patent, Column 17, lines 64-65. This step occurs within the Century Plant at component E-1207, which is a heat exchanger. Within it, the cooler carbon dioxide-lean stream flows by the warmer light hydrocarbon stream, and cools it. See Prim Declaration at ¶ 24. This step is shown in Figure 4 below. The light hydrocarbon stream is piped (shown in yellow) into the inlet gas condenser E-1207 from the left in Figure 4, while the carbon dioxide-lean stream is piped (shown in purple) from component D-1202 into the inlet gas condenser E-1207 from the right. As the streams pass by one another, the carbon dioxide-lean stream cools the light hydrocarbon stream. The Century Plant thus performs as required by the fifth paragraph of claim 1.

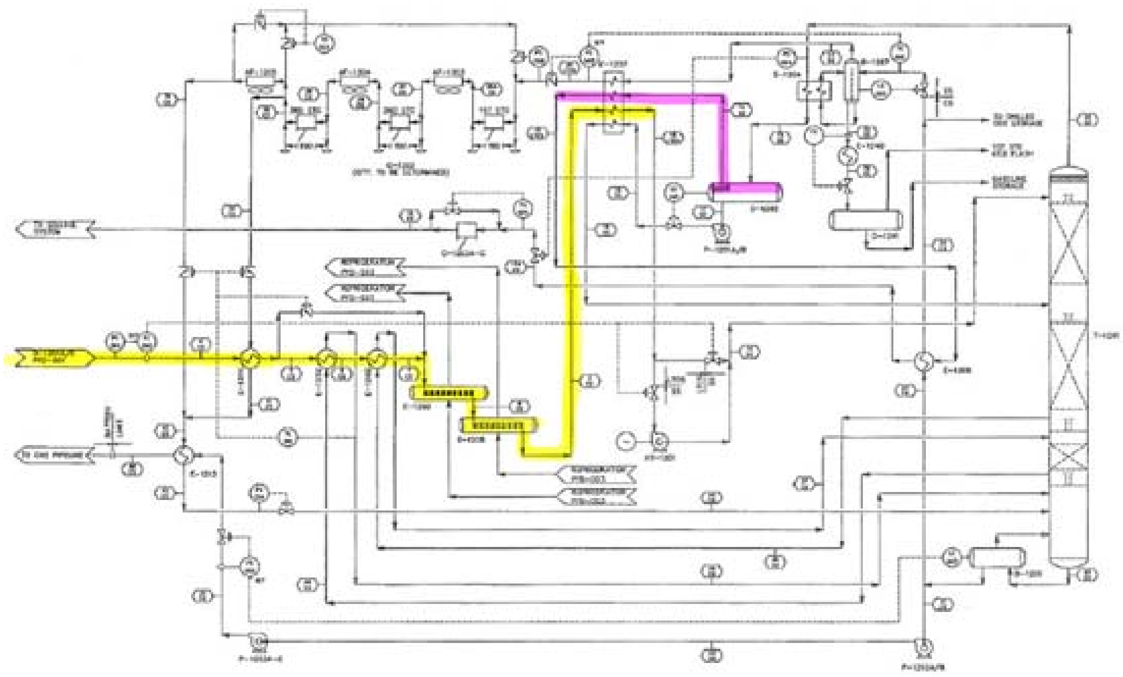

Figure 4

6. Oxy feeds the carbon dioxide-lean stream into a hydrocarbon sweetening process.

The sixth paragraph of claim 1 requires feeding at least a portion of the carbon dioxide-lean stream to a hydrocarbon sweetening process. ‘148 Patent, Column 17, Lines 66-67. In its Answer to the Amended Complaint Oxy admits “the vaporous carbon dioxide-lean stream that flows from component D-1202 [the reflux accumulator] is fed through piping into a hydrocarbon sweetening process….” Answer at ¶ 25 (emphasis added); See also Answer at ¶ 34. The Century Plant thus practices the step recited in paragraph six of claim 1.

As detailed above, there is a one-to-one correspondence between the elements of claim 1 and Oxy’s use of the Century Plant. Accordingly, Oxy literally infringes claim 1 of the ‘148 Patent and summary judgment of literal infringement should be granted.

C. Oxy infringes dependent claims 3, 5, 6, 7, 8, and 10.

1. The Century Plant uses distillation to separate the carbon dioxide-lean stream and the carbon dioxide-rich stream from the light hydrocarbon stream as required by claim 3.

Claim 3 depends from claim 1, discussed above, and adds the requirement to claim 1 that distillation is used to separate the carbon dioxide-lean stream and the carbon dioxide-rich stream from the light hydrocarbon stream. '148 Patent, Column 18, Lines 5-7. In the Century Plant, the component that performs the required separation, T-1201, is a distillation column, which uses distillation to perform the separation. See Prim Declaration at ¶ 18. The Century Plant thus performs as required by claim 3, and Oxy literally infringes that claim.

2. The Century Plant changes the temperature of the carbon dioxide-lean stream as required by claim 5.

Claim 5 depends from claim 1 and adds the requirement of changing the temperature of the carbon dioxide-lean stream after its separation from the light hydrocarbon stream and before it is fed into the hydrocarbon sweetening process. '148 Patent, Column 18, Lines 10-13. Oxy admits that the temperature of the carbon dioxide-lean stream is changed after its separation from the light hydrocarbon stream and before it is fed into the hydrocarbon sweetening process. Answer at ¶ 36. This fact is confirmed by Mr. Prim. See Prim Declaration at ¶ 24. The Century Plant thus performs as required by claim 5, and Oxy literally infringes that claim.

3. The hydrocarbon sweetening process used by the Century Plant is a Selexol process as required by claim 6.

Claim 6 depends from claim 1 and further requires that the hydrocarbon sweetening process comprise a Selexol process. '148 Patent, Column 18, Lines 14-15.

In its Answer Oxy admits the hydrocarbon sweetening process used at the Century Plant is a Selexol process. See Answer at ¶¶ 25 and 34. Mr. Prim confirms this fact. See Prim Declaration at ¶ 25. Accordingly, Oxy literally infringes claim 6 of the ‘148 Patent.

4. Oxy injects the carbon dioxide-rich stream produced by the Century Plant into a subterranean formation containing hydrocarbons.

Claim 7 depends from claim 1 and adds the step of injecting a portion of the carbon dioxide-rich stream into a subterranean formation containing hydrocarbons to the steps of claim 1. ‘148 Patent, Column 18, Lines 16-18. At paragraphs 28 and 38 of the Answer Oxy admits that it injects at least a portion of the carbon dioxide-rich stream produced by the Century Plant into underground oil reservoirs. See Answer at ¶¶ 28 and 38. Claim 7 is literally infringed by Oxy.

5. Oxy removes hydrocarbons from a subterranean formation using the carbon dioxide-rich stream injected into the ground during the step of claim 7.

Claim 8 depends from claim 7 and adds the step of removing hydrocarbons from the subterranean formation after the injection step of claim 7. ‘148 Patent, Column 18, Lines 19-21. As discussed with regard to claim 7, Oxy has admitted it injects the carbon dioxide-rich stream from the Century Plant into underground oil reservoirs. See Answer at ¶¶ 28 and 39. Oxy further admits that it removes hydrocarbons from the subterranean formation after the injection step of claim 7. See Answer at ¶¶ 28 and 39. Therefore, Oxy literally infringes claim 8.

6. The Century Plant processes the carbon dioxide-lean stream as required by claim 10.

Claim 10 depends directly from claim 1 and adds the requirement that the carbon dioxide-lean stream have a different composition after its separation from the light hydrocarbon stream and before it is fed into the hydrocarbon sweetening process. '148 Patent, Column 18, Lines 31-34. A change in composition of the carbon dioxide-lean stream in the Century Plant occurs at component E-1204, which is situated between separator T-1201 and the entry to the Selexol process. This change of composition occurs when a liquid reflux stream is separated from the vapor carbon dioxide-lean stream in component E-1204. See Prim Declaration at ¶¶21-22. Because the carbon dioxide-lean stream has different compositions on opposite sides of component E-1204, the Century Plant literally infringes claim 10.

D. Oxy literally infringes independent claim 33.

Claim 33 of the '148 is, like claim 1, an independent claim. Claim 33 states:

> [1] A process for treating a hydrocarbon feed stream containing carbon dioxide comprising:
>
> [2] treating the hydrocarbon feed stream in a distillation column to produce a carbon dioxide-lean first column stream and a carbon dioxide-rich second column stream;
>
> [3] treating the first column stream in a reflux condenser to produce a reflux stream and a carbon dioxide-lean output stream;
>
> [4] recycling the reflux stream into the distillation column;
>
> [5] cooling the hydrocarbon feed stream with at least a portion of the carbon dioxide-lean output stream; and
>
> [6] feeding at least a portion of the carbon dioxide-lean output stream into a hydrocarbon sweetening process.

'148 Patent, Column 20, Lines 14-26 (paragraph numbers added). Oxy has admitted the Century Plant processes a hydrocarbon feed stream containing carbon dioxide as stated in the first paragraph of claim 33. Answer at ¶ 41. Oxy has also admitted that at least a portion of a carbon dioxide-lean stream produced by the Century Plant is fed into a hydrocarbon sweetening process as required paragraph six of claim 33. Answer at ¶¶ 25 and 46. Thus, only the elements contained in paragraphs two through five of claim 33 are in issue. As discussed below, Oxy's use of the Century Plant is covered by paragraphs two through five of claim 33.

1. The Century Plant treats the hydrocarbon feed stream in a distillation column to produce a carbon dioxide-lean first column stream and a carbon dioxide-rich second column stream.

As discussed above in Section II.B.1, with reference to claim 1, the Century Plant is operated to receive a feed stream that contains hydrocarbons in component T-1201. See Prim Declaration at ¶¶ 16-17. Component T-1201 separates components of the hydrocarbon feed stream by fractionation. See Prim Declaration at ¶¶ 18-20. The fractionation process used by component T-1201 is distillation. See Prim Declaration at ¶ 18. Thus, component T-1201 of the Century Plant is a distillation column that treats a hydrocarbon feed stream, as required by claim 33.

The distillation column of the Century Plant produces the two output streams required by claim 33. See Prim Declaration at ¶¶ 19-20. The output streams are a top stream that is carbon dioxide-lean first column stream and a bottom output stream that is a carbon dioxide-rich second column stream. See *id*. Because the Century Plant uses distillation to treat a hydrocarbon feed stream to produce a carbon dioxide-lean first column stream and a carbon dioxide-rich second column stream, the Century Plant performs as required by the second paragraph of claim 33.

2. The Century Plant treats the first column stream in a reflux condenser to produce a reflux stream and a carbon dioxide-lean output stream.

The third paragraph of claim 33 requires "treating the first column stream in a reflux condenser to produce a reflux stream and a carbon dioxide-lean output stream."

‘148 Patent, Column 20, Lines 19-21. As shown in Figure 5, the first column stream is piped to the reflux condenser E-1204. See Prim Declaration at ¶ 21. In the reflux condenser, a portion of the vaporous first column stream is condensed to from a liquid reflux stream. The uncondensed portion of the first column stream remains lean in carbon dioxide and is a carbon dioxide-lean output stream of condenser E-1204. See Prim Declaration at ¶¶ 21-22. The Century Plant thus performs as required by the third paragraph of claim 33.

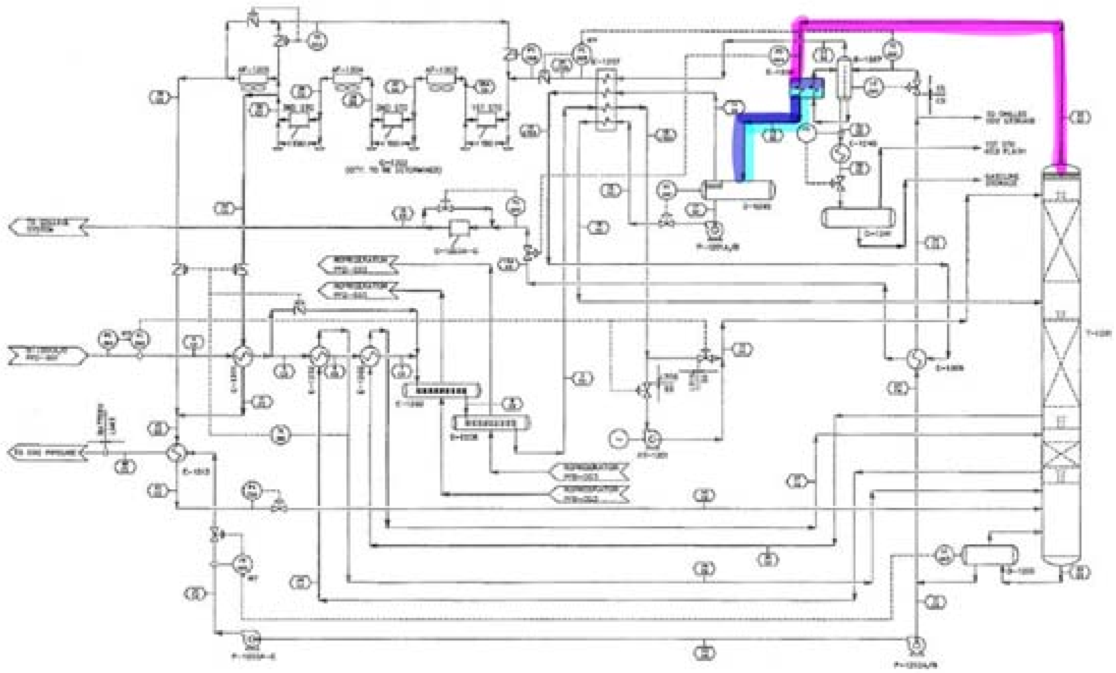

Figure 5

3. **The Century Plant recycles the reflux stream to the distillation column.**

The fourth paragraph of claim 33 requires “recycling the reflux stream into the distillation column.” ‘148 Patent, Column 20, Line 22. In the Century Plant, the liquid reflux stream, which is condensed from the top product of component T-1201 in component E-1204, is pumped back into component T-1201, and thus recycled. See Prim

Declaration at ¶ 23. The liquid reflux stream flows from component E-1204 to component D-1202 and then back to component T-1201, which is the distillation column. See Prim Declaration at ¶¶ 21-23. Figure 6 shows this step of claim 33. The Century Plant thus performs as required by the fourth paragraph of claim 33.

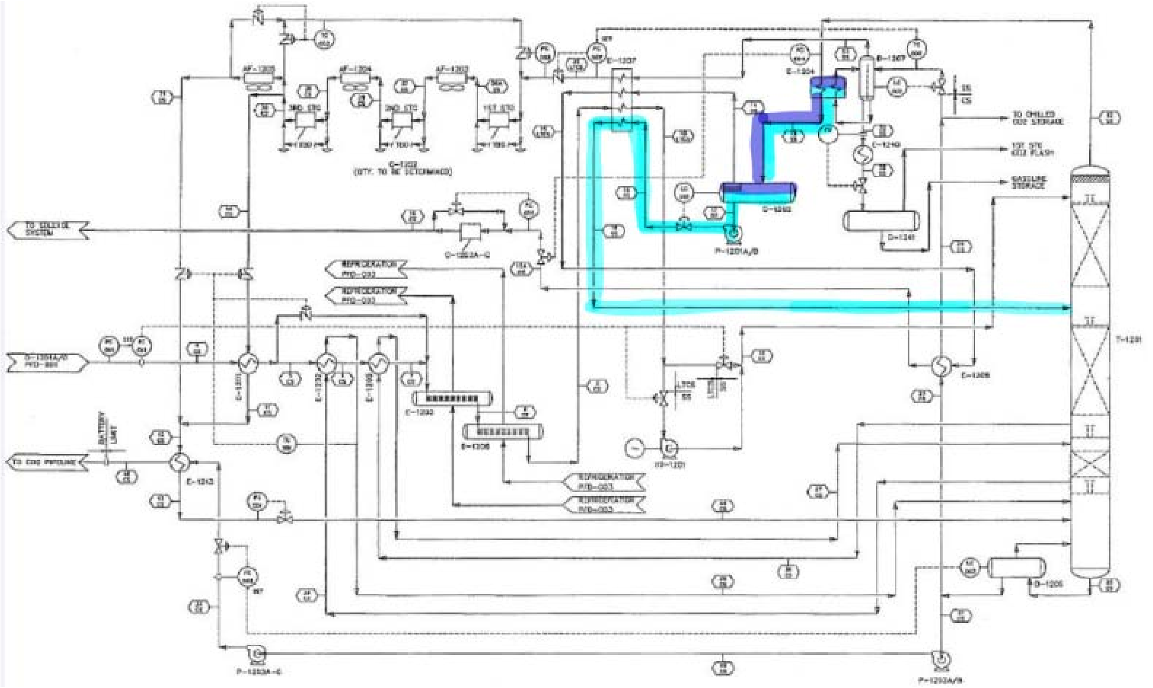

Figure 6

4. Oxy's Century Plant cools the incoming hydrocarbon feed stream with at least a portion of the carbon dioxide-lean output stream.

The fifth paragraph of claim 33 requires "cooling the hydrocarbon feed stream with at least a portion of the carbon dioxide-lean output stream." '148 Patent, Column 20, lines 23-24. As discussed above, this step occurs within the Century Plant at component E-1207, which is a heat exchanger. Within it, the cooler carbon dioxide-lean output stream flows by the warmer hydrocarbon feed stream, and cools it. See Prim Declaration at ¶ 24. This step is shown in Figure 7, below. The hydrocarbon feed stream is piped (shown in yellow) into the inlet gas condenser E-1207 from the left in Figure 7, while the carbon dioxide-lean output stream is piped (shown in dark purple) from component D-1202 into the inlet gas condenser E-1207 from the right. As the streams pass by one another, the carbon dioxide-lean output stream cools the hydrocarbon feed stream. The Century Plant thus performs as required by the fifth paragraph of claim 33.

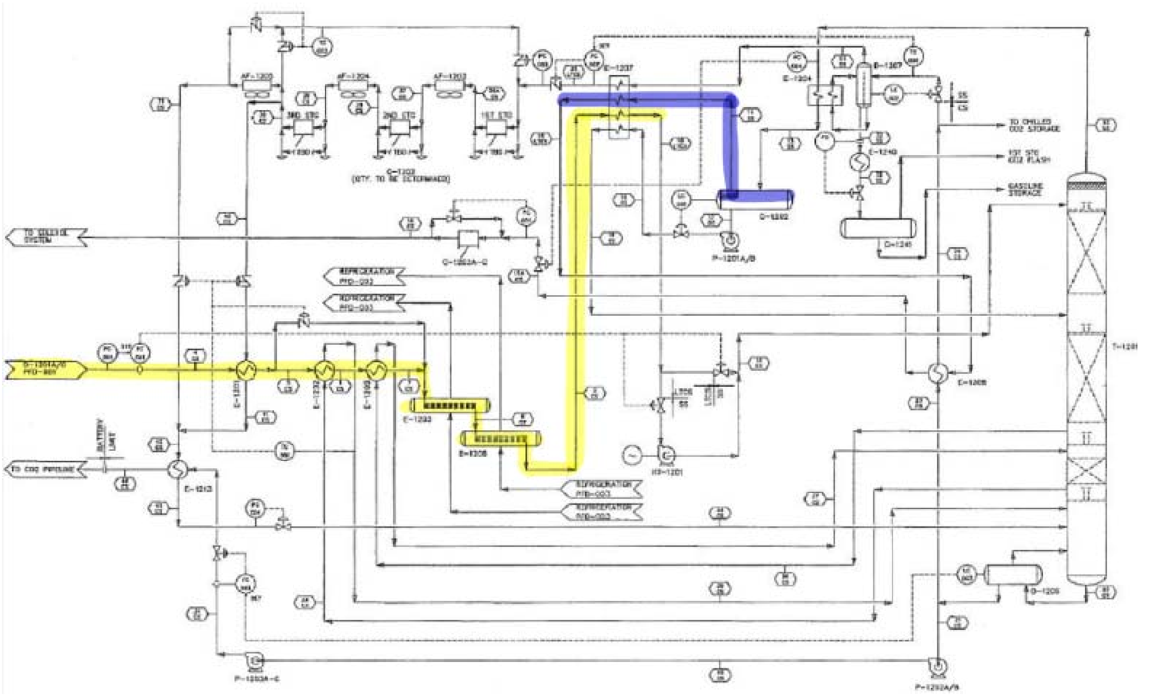

Figure 7

There is a clear one-to-one correspondence between the elements of claim 33 and Oxy's use of the Century Plant. Thus, Oxy literally infringes claim 33 of the '148 Patent and summary judgment of literal infringement of should be granted.

III. CONCLUSION

The Court should grant partial summary judgment finding that Oxy literally infringes claim 1, 3, 5, 6, 7, 8, 10 and 33 of the '148 Patent.

CERTIFICATE OF SERVICE

I hereby certify that on this 16th day of November, 2016, I served a true and correct copy of the foregoing via CM/ECF to the following counsel of record:

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